

# NISTTech

## Digitally Synthesized Audio Frequency Voltage Source

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### Description

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The invention pertains to voltage waveform generation systems and more particularly to the digital generation of synthetic alternating current voltage waveforms in the audio frequency range.

### Abstract

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A method and apparatus for accurately generating a digitally synthesized sinusoidal voltage is started by storing digital values for sine waveforms in a read only memory. A first and second digital to analog converters are connected to the read only memory through latches. The outputs of the first and second digital to analog converters are alternatively switched between the inverting input and the non-inverting input of an operational amplifier such that one of the first and second digital to analog converter is connected to the inverting input while the other is connected to the non-inverting input. The output of the operational amplifier is connected to the inverting input through a variable capacitance, the feedback being determined by the one of the first and second digital to analog converter connected to the inverting input. A clock is used to control the connection of the first and second digital to analog converter to the inverting input and to control the determination of the feedback.

### Inventors

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- Oldham, Nile M.

### Citations

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1. N.M. Oldham, P.S. Hetrick, and X Zeng. A Calculable, Transportable Audio-Frequency AC Reference Standard. IEEE Transactions on Instrumentation and Measurement, Vol 38, No. 2, April 1989.

### References

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- Expired U.S. Patent # 5,039,872
- Docket: 89-009US

### Status of Availability

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This technology is available in the public domain. Please contact NIST's Office of Technology Partnerships for more information.

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